

Introduction

This installation guide provides instructions for installation, startup, and adjustment. To receive a copy of the instruction manual, contact your local Sales Office or view a copy at www.fisherregulators.com. For further information refer to: Types 1098-EGR and 1098H-EGR Instruction Manual, form 5084, D100339X012.

P.E.D. Categories

This product may be used as a safety accessory with pressure equipment in the following Pressure Equipment Directive 97/23/EC categories. It may also be used outside of the Pressure Equipment Directive using sound engineering practice (SEP) per table below.

PRODUCT SIZES	CATEGORIES
DN 25 / NPS 1	SEP
DN 50, 80, 100, 150, 200 x 150, 300 x 150 / NPS 1, 2, 3, 4, 6, 8 x 6, 12 x 6	II

Specifications

Body Sizes and End Connection Styles

See Table 1

Main Valve Maximum Inlet Pressure⁽¹⁾

27.6 bar / 400 psig or body rating limit whichever is lower.

Maximum Pilot Supply Pressure⁽¹⁾

41.4 bar / 600 psig

Outlet Pressure Ranges⁽¹⁾

See Table 2

Actuator Sizes and Maximum Pressures⁽¹⁾

See Table 3

Maximum and Minimum Differential Pressures⁽¹⁾

See Table 4

Maximum Temperature Capabilities⁽¹⁾

Nitrile (NBR): -20° to 180°F / -29° to 82°C

Fluorocarbon (FKM): 0° to 300°F / -18° to 149°C, except water is limited to 0° to 200°F / -18° to 93°C

Ethylenepropylene (EPR): -20° to 275°F / -29° to 135°C

Installation

WARNING

Only qualified personnel should install or service a regulator. Regulators should be installed, operated, and maintained in accordance with international and applicable codes and regulations, and Fisher instructions.

If the regulator vents fluid or a leak develops in the system, it indicates that service is required. Failure to take the regulator out of service immediately may create a hazardous condition.

Personal injury, equipment damage, or leakage due to escaping fluid or bursting of pressure-containing parts may result if this regulator is overpressured or is installed where service conditions could exceed the limits given in the Specifications section, or where conditions exceed any ratings of the adjacent piping or piping connections.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting devices (as required by the appropriate code, regulation, or standard) to prevent service conditions from exceeding limits.

Additionally, physical damage to the regulator could result in personal injury and property damage due to escaping fluid. To avoid such injury and damage, install the regulator in a safe location.

Clean out all pipelines before installation of the regulator and check to be sure the regulator has not been damaged or has collected foreign material during shipping. For NPT bodies, apply pipe compound to the external pipe threads. For flanged bodies, use suitable line gaskets and approved piping and bolting practices. Install the regulator in any position desired, unless otherwise specified, but be sure flow through the body is in the direction indicated by the arrow on the body.

Note

It is important that the regulator be installed so that the vent hole in the spring case is unobstructed at all times. For outdoor

1. The pressure/temperature limits in this installation guide and any applicable standard or code limitation should not be exceeded.

Table 1. Body Sizes and End Connection Styles

BODY SIZES		CAST IRON	STEEL OR STAINLESS STEEL
DN	NPS		
25, 50	1, 2	NPT, CL125 FF, or CL250 RF	CL150 RF, CL300 RF, CL600 RF, BWE, SWE, or PN 16/25/40
80, 100, 150	3, 4, 6	CL125 FF or CL250 RF	CL150 RF, CL300 RF, CL600 RF, BWE, or PN 16/25/40
200 x 150, 300 x 150	8 x 6, 12 x 6	----	CL150 RF, CL300 RF, CL600 RF, or BWE

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Table 2. Outlet Pressure Ranges

PILOT TYPES	OUTLET (CONTROL) PRESSURE RANGE	
	bar	psig
6351	0,21 to 1,38	3 to 20
	0,34 to 2,41	5 to 35
	2,41 to 6,90	35 to 100
6352	35 mbar to 0,14 bar	14-inches w.c. to 2 psig
	0,14 to 0,69	2 to 10
6353	0,21 to 2,76	3 to 40
	2,41 to 8,62	35 to 125
6354L ⁽¹⁾	5,86 to 13,8	85 to 200
6354M ⁽²⁾	12,1 to 15,2	175 to 220
6354H	13,8 to 20,7	200 to 300
61L 61LD 61LE	0,02 to 0,14	0,25 to 2
	0,07 to 0,34	1 to 5
	0,14 to 0,69	2 to 10
	0,34 to 1,03	5 to 15
	0,69 to 1,38	10 to 20
61H	0,69 to 4,48	10 to 65
61HP	1,03 to 3,10	15 to 45
	2,41 to 6,90	35 to 100
	6,90 to 20,7	100 to 300
Y600AM	10 to 20 mbar	4 to 8-inches w.c.
	17 to 40 mbar	7 to 16-inches w.c.
	37 to 83 mbar	15-inches w.c. to 1,2 psig
	0,83 to 0,17	1,2 to 2,5
	0,17 to 0,31	2,5 to 4,5
	0,31 to 0,48	4,5 to 7

1. Without diaphragm limiter.

2. With diaphragm limiter.

Table 3. Actuator Sizes and Maximum Pressures

ACTUATOR		OUTLET (CONTROL) PRESSURE		EMERGENCY CASING PRESSURE	
Type	Size	bar	psig	bar	psig
1098	30	6,90	100	7,93	115
	40 (standard)	5,17	75	5,65	82
	70	3,45	50	4,48	65
1098H	30	24,1	350	27,6	400

Table 4. Maximum and Minimum Differential Pressures for Main Valve Selection

BODY SIZES		SPRING PART NUMBER AND COLOR	MAXIMUM ALLOWABLE DIFFERENTIAL PRESSURE, bar / psig ⁽¹⁾	MINIMUM DIFFERENTIAL PRESSURE REQUIRED FOR FULL STROKE					
				Size 30 Actuator		Size 40 Actuator		Size 70 Actuator	
DN	NPS		bar	psig	bar	psig	bar	psig	
25	1	14A9687X012, Green	4,14 / 60	0,24	3,5	0,17	2,5	0,07	1
		14A9680X012, Blue	8,62 / 125	0,34	5	0,21	3	0,10	1,5
		14A9679X012, Red	27,6 / 400 or body rating limit, whichever is lower	0,48	7	0,34	5	0,17	2,5
50	2	14A6768X012, Yellow	1,38 / 20	----	----	----	----	0,07	1
		14A6626X012, Green	4,14 / 60	0,28	4	0,21	3	0,10	1,5
		14A6627X012, Blue	8,62 / 125	0,41	6	0,34	5	0,14	2
		14A6628X012, Red	27,6 / 400 or body rating limit, whichever is lower	0,76	11	0,69	10	0,21	3
80	3	14A6771X012, Yellow	1,38 / 20	----	----	----	----	0,07	1
		14A6629X012, Green	4,14 / 60	0,34	5	0,28	4	0,14	2
		14A6630X012, Blue	8,62 / 125	0,55	8	0,41	6	0,17	2,5
		14A6631X012, Red	27,6 / 400 or body rating limit, whichever is lower	0,97	14	0,76	11	0,28	4
100	4	14A6770X012, Yellow	1,38 / 20	----	----	----	----	0,09	1,3
		14A6632X012, Green	4,14 / 60	0,69	10	0,34	5	0,17	2,5
		14A6633X012, Blue	8,62 / 125	0,90	13	0,55	8	0,21	3
		14A6634X012, Red	27,6 / 400 or body rating limit, whichever is lower	1,52	22	0,90	13	0,34	5
150, 200 x 150, 300 x 150	6, 8 x 6, 12 x 6	15A2253X012, Yellow	1,38 / 20	----	----	----	----	0,15	2,2
		14A9686X012, Green	4,14 / 60	0,90	13	0,66	9,5	0,28	4
		14A9685X012, Blue	8,62 / 125	1,31	19	0,97	14	0,41	6
		15A2615X012, Red	27,6 / 400 or body rating limit, whichever is lower	1,93 ⁽²⁾	28 ⁽²⁾	1,31	19	0,55	8

1. Maximum inlet pressure is equal to set pressure plus maximum differential.

2. Requires special 6300 Series pilot construction without integral relief valve and with external Type 1806 2,76 bar d / 40 psid relief valve.

installations, the regulator should be located away from vehicular traffic and positioned so that water, ice, and other foreign materials cannot enter the spring case through the vent. Avoid placing the regulator beneath eaves or downspouts, and be sure it is above the probable snow level.

Overpressure Protection

The recommended pressure limitations are stamped on the regulator nameplate. Some type of overpressure protection is needed if the actual inlet pressure exceeds the maximum operating outlet pressure rating. Overpressure protection should also be provided if the

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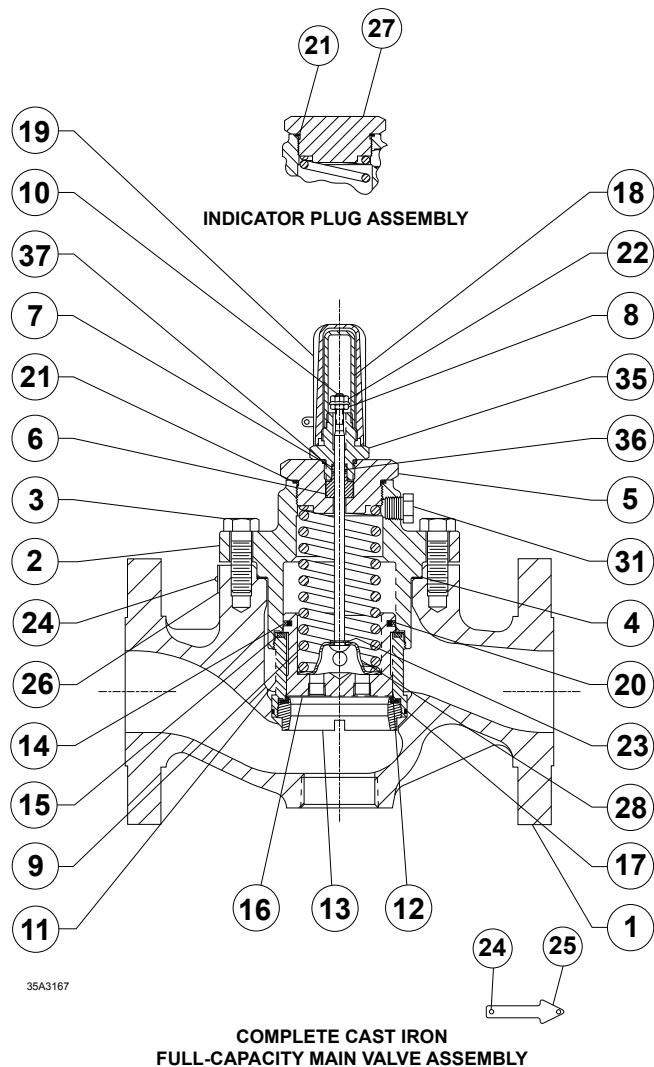


Figure 1. Type EGR Main Valve Assembly

regulator inlet pressure is greater than the safe working pressure of the downstream equipment.

Regulator operation below the maximum pressure limitations does not preclude the possibility of damage from external sources or debris in the line. The regulator should be inspected for damage after any overpressure condition.

Startup

The regulator is factory set at approximately the midpoint of the spring range or the pressure requested, so an initial adjustment may be required to give the desired results. With proper installation completed and relief valves properly adjusted, slowly open the upstream and downstream shutoff valves.

Adjustment

To change the outlet pressure, remove the closing cap or loosen the locknut and turn the adjusting screw clockwise to increase outlet pressure or counterclockwise to decrease outlet pressure. Monitor the outlet pressure with a test gauge during the adjustment. Replace the closing cap or tighten the locknut to maintain the desired setting.

Taking Out of Service (Shutdown)

WARNING

To avoid personal injury resulting from sudden release of pressure, isolate the regulator from all pressure before attempting disassembly.

Type EGR Parts List (Figure 1)

Key	Description	Key	Description
1	Valve Body	20	Plug O-Ring
2	Body Flange	21	Travel Indicator Fitting or Indicator Plug O-Ring
3	Cap Screw or Stud Bolt	22	Travel Indicator Flange Nut
4	Gasket	23	E-Ring
5	Travel Indicator Fitting	24	Drive Screw
6	O-ring Retainer	25	Flow Arrow
7	Travel Indicator Stem O-Ring	26	Body Rating Plate (not shown)
8	Travel Indicator Hex Nut	27	Indicator Plug
9	Spring	28	Spring Seat
10	Travel Indicator Stem	29	Hex Nut (not shown)
11	Cage	31	Pipe Plug
12	Port Seal	32	Travel Stop
13	Seat Ring	33	NACE Tag (not shown)
14	Piston Ring	34	Tag Wire (not shown)
15	Upper Seal	35	Fitting
16	Valve Plug	36	Back-up Ring
17	Cage O-Ring	37	O-Ring
18	Travel Indicator Scale		
19	Travel Indicator Protector		

Types 1098-EGR and 1098H-EGR

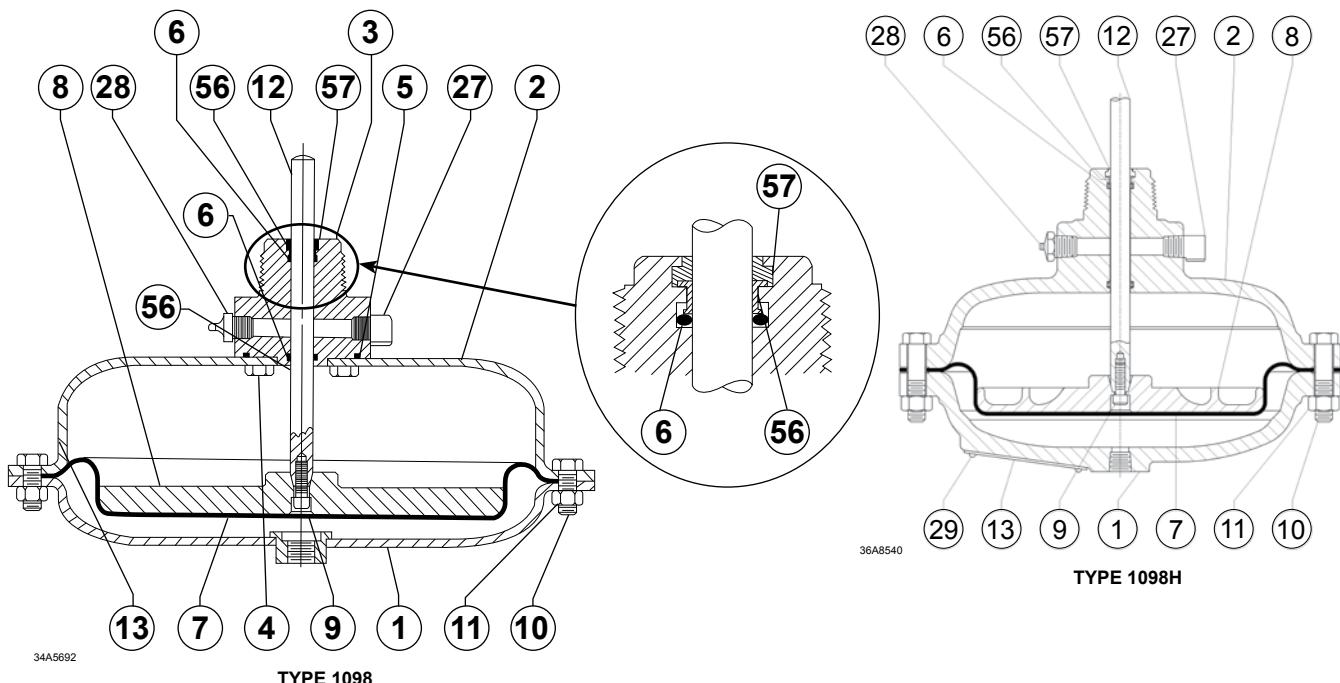


Figure 2. Types 1098 and 1098H Actuator Assemblies

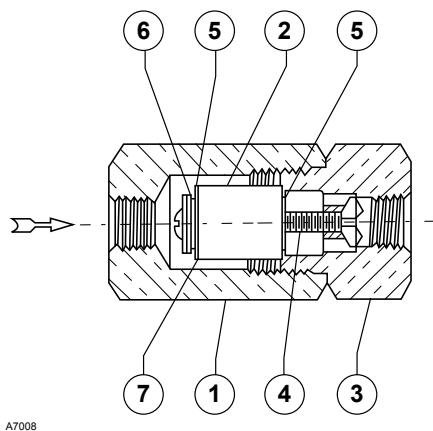


Figure 3. Standard P590 Series Filter Assembly

Types 1098 and 1098H Actuators Parts List (Figure 2)

Key Description

- 1 Lower Casing
- 2 Upper Casing
- 3 Bonnet
- 4 Cap Screw
- 5 Casing O-Ring
- 6 Stem O-Ring
- 7 Diaphragm
- 8 Diaphragm Plate
- 9 Cap Screw
- 10 Cap Screw Stud
- 11 Hex Nut
- 12 Stem
- 13 Nameplate (not shown)
- 27 Vent Insert
- 28 Zerk Fitting
- 56 Bearing
- 54 NACE Tag (not shown)
- 55 Tag Wire (not shown)
- 57 Wiper

P590 Series Parts List (Figure 3)

Key Description

- 1 Filter Body
- 2 Filter Element
- 3 Filter Head
- 4 Machine Screw
- 5 Washer
- 6 Spring Washer
- 7 Gasket
- 11 NACE Tag (not shown)
- 12 Tag Wire (not shown)

Type 6351 Parts List (Figure 4)

Key Description

- 1 Body Assembly
- 2 Bonnet
- 3 Body Plug Assembly
- 4 Inner Valve Assembly
- 6 Valve Spring
- 7 Diaphragm Assembly
- 8 Upper Spring Seat
- 9 Control Spring
- 10 Adjusting Screw
- 11 Locknut
- 12 Machine Screw
- 13 Hex Lock Plate
- 14 Threaded Lock Plate
- 22 Pipe Nipple
- 24 P590 Series Filter
- 28 Closing Cap
- 35 Vent Assembly
- 42 Relief Valve Assembly
- 43 Closing Cap Gasket

Types 1098-EGR and 1098H-EGR

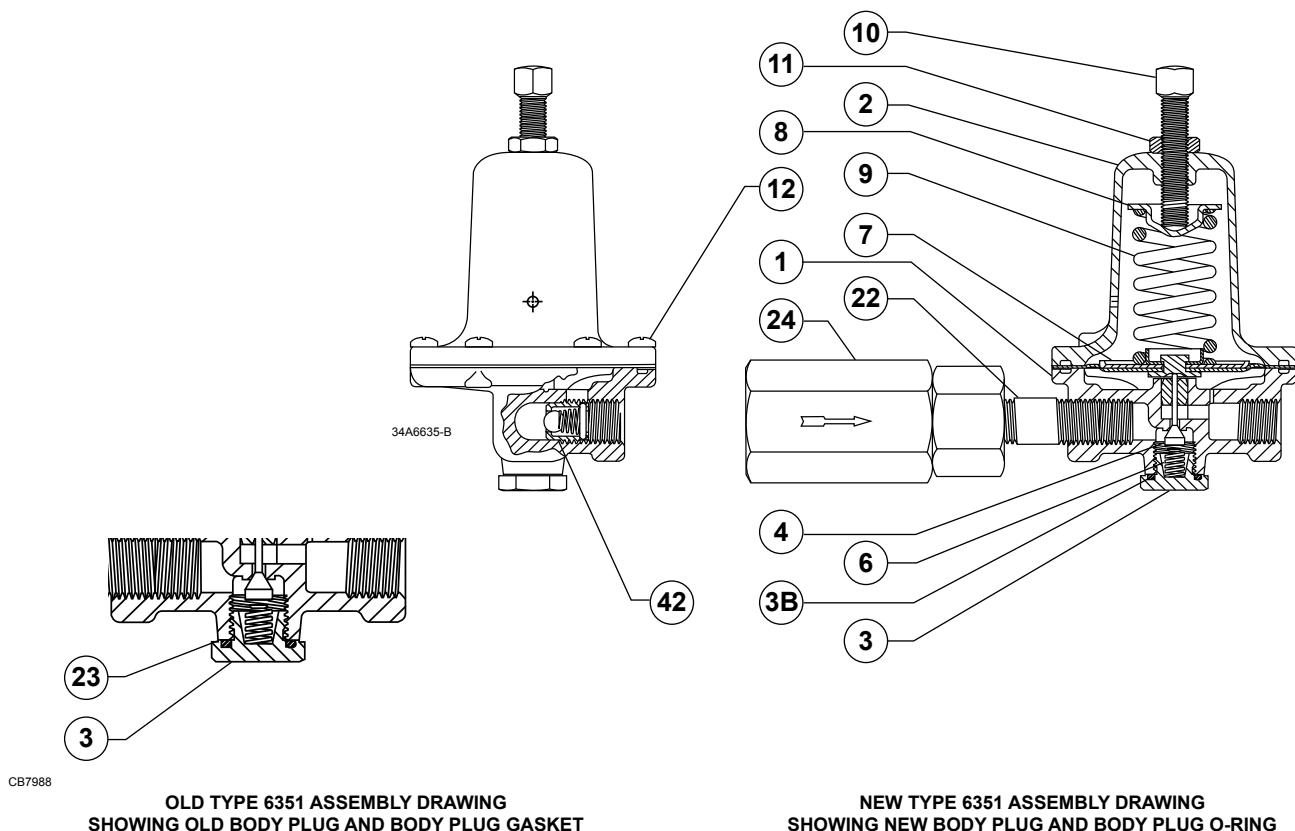


Figure 4. Type 6351 Pilot Assembly

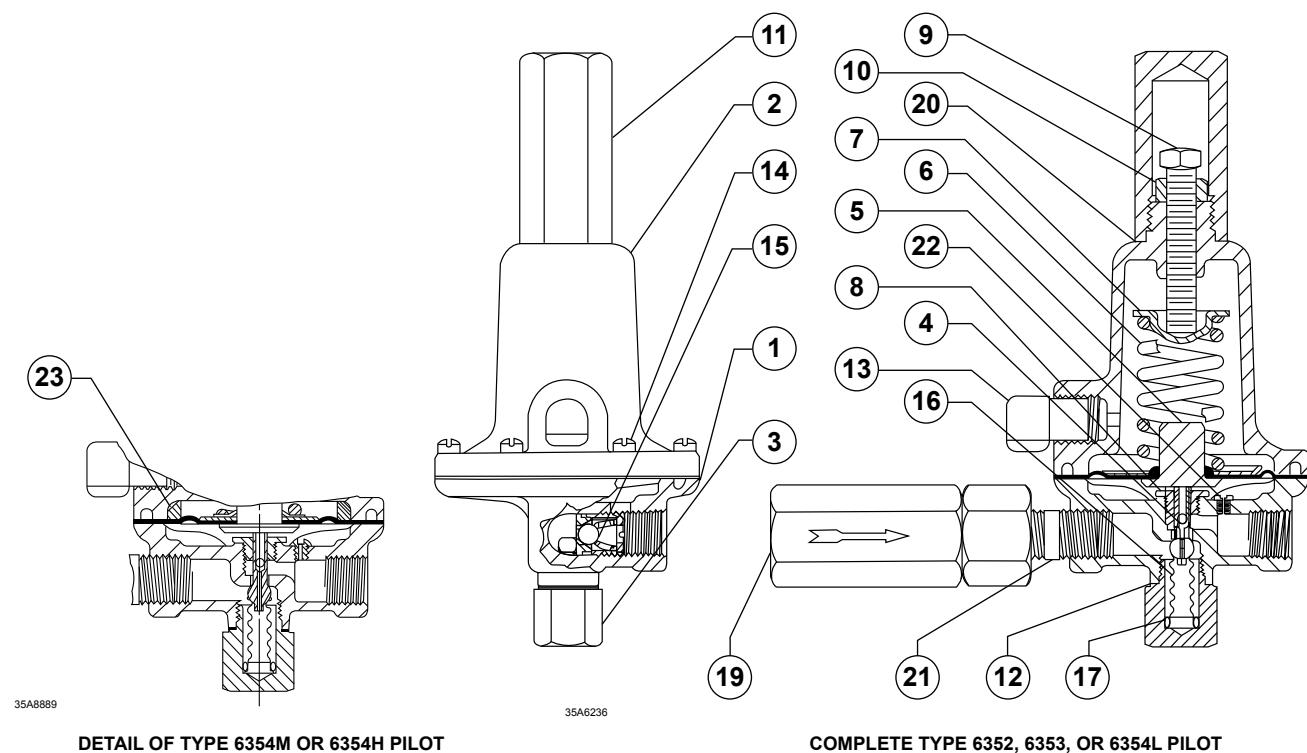


Figure 5. Types 6352 through 6354H Pilot Assemblies

Types 1098-EGR and 1098H-EGR

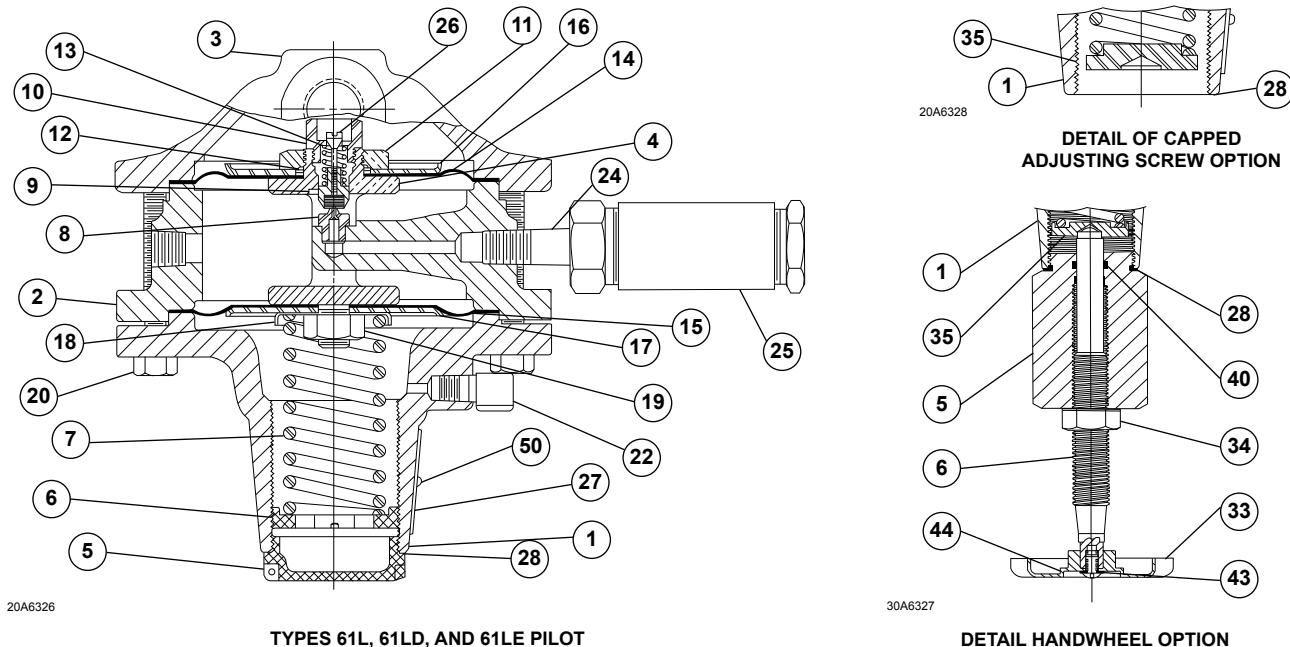


Figure 6. Types 61L, 61LD, and 61LE Pilot Assemblies

Types 6352, 6353, 6354L, 6354M, and 6354H Pilots Parts List (Figure 5)

Key Description

- 1 Pilot Body
- 2 Spring Case or Regulator Bonnet
- 3 Body Plug
- 4 Valve Plug and Stem Assembly
- 5 Diaphragm Assembly
- 6 Control Spring
- 7 Spring Seat
- 8 Stem Guide
- 9 Adjusting Screw
- 10 Locknut
- 11 Closing Cap
- 12 Body Plug Gasket / O-ring
- 13 Vent Assembly
- 14 Machine Screw
- 15 Relief Valve Assembly
- 16 Bellows Assembly
- 17 O-ring
- 18 Filter
- 20 Closing Cap Gasket
- 21 Pipe Nipple
- 22 Restriction
- 23 Diaphragm Limiter
- 26 NACE Tag
- 27 Tag Wire
- 28 Packing Bonnet
- 29 Handwheel
- 30 Closing Cap
- 31 Washer
- 32 Screw
- 33 Packing Spring
- 34 Packing Box Gasket
- 35 Packing Follower
- 36 External Adaptor
- 37 Internal Adaptor
- 38 Packing Washer
- 39 Packing Ring
- 40 Adjusting Screw

61 Series Parts List (Figures 6, 7, and 8)

Key Description

- 1 Relay Spring Case
- 2 Relay Valve Body
- 3 Bottom Cover
- 4 Relay Yoke
- 5 Closing Cap Assembly
- 6 Adjusting Screw
- 7 Control Spring
- 8 Relay Orifice
- 9 Disc Holder Assembly
- 10 Bleed Orifice
- 11 Diaphragm Nut
- 12 O-ring Seal
- 13 Relay Spring
- 14 Upper Relay Diaphragm
- 15 Lower Relay Diaphragm
- 16 Upper Relay Head
- 17 Lower Relay Head
- 18 Spring Seat
- 19 Hex Nut
- 20 Cap Screw
- 23 Pipe Plug or Vent Assembly
- 24 Pipe Nipple
- 25 Filter Assembly
- 26 Bleed Valve
- 27 Nameplate
- 28 Gasket
- 30 Pipe Plug
- 33 Handwheel
- 34 Hex Nut
- 35 Spring Seat
- 40 O-ring
- 41 Adaptor
- 42 Yoke Cap
- 43 Lockwasher
- 44 Machine Screw
- 45 Valve Spring Seat
- 46 Cap Screw
- 47 Machine Screw
- 48 Cap Screw
- 50 Drive Screw
- 51 Diaphragm Insert
- 52 Lower Yoke Cap
- 53 Bleed Plug
- 54 Vent Assembly

Types 1098-EGR and 1098H-EGR

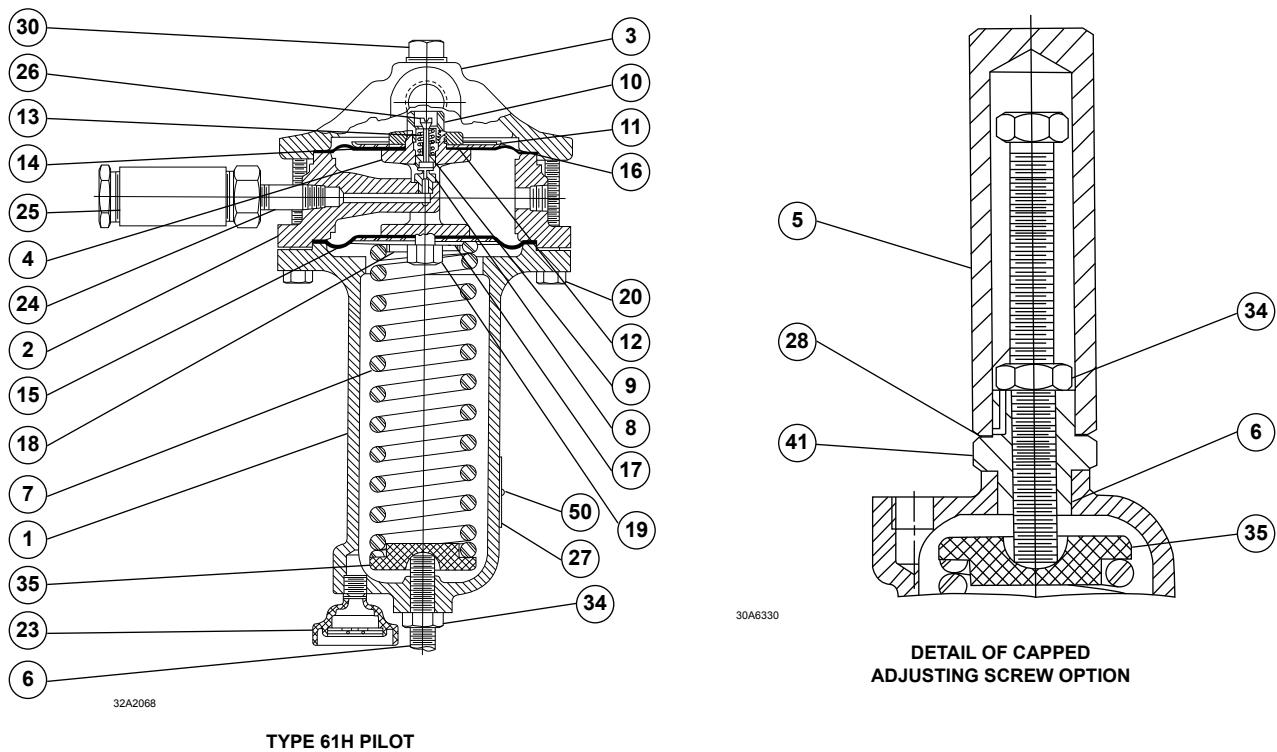


Figure 7. Type 61H Pilot Assembly

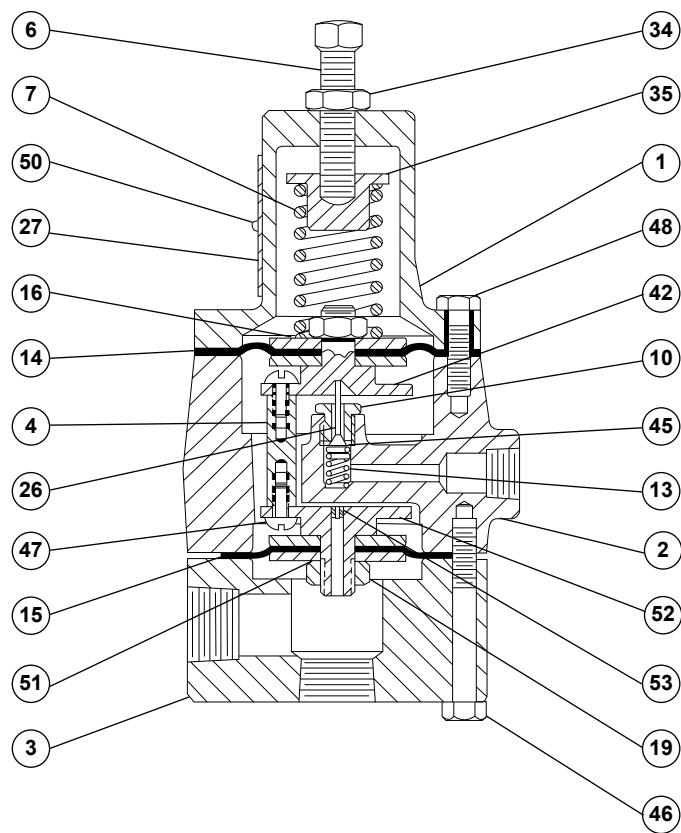


Figure 8. Type 61HP Pilot Assembly

Types 1098-EGR and 1098H-EGR

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